

ORIGINAL ARTICLE

Quality of life in patients with chronic rhinosinusitis at dustira hospital using the SNOT-22 questionnaire

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ABSTRACT

Chronic rhinosinusitis is an inflammatory condition of the nasal and paranasal sinus mucosa that persists for more than 12 weeks and significantly impairs patients' quality of life. Persistent symptoms, including nasal obstruction, nasal discharge, facial pain, and sleep disturbances, interfere with daily activities and overall well-being. This study aimed to describe the quality of life of patients with chronic rhinosinusitis at the ENT-HNS Polyclinic of Dustira Hospital using the Sino-Nasal Outcome Test-22 (SNOT-22) questionnaire. This descriptive observational study employed a cross-sectional design. The study included patients diagnosed with chronic rhinosinusitis who met the inclusion and exclusion criteria between October 2025 and January 2026. Total sampling was used. Data were collected using the SNOT-22 questionnaire and analyzed using univariate statistical analysis. Among the 35 patients included, most were adults aged 18-59 years (91.4%) and female (71.4%). The most common occupations were housewives (25.7%) and students (25.7%). Based on the SNOT-22 scores, 85.7% of patients had severe impairment in quality of life, with the highest scores observed in the nasal symptoms, sleep dysfunction, and psychological distress domains. The most frequently reported symptoms were nasal obstruction, excessive nasal secretion, and sleep disturbances. In conclusion, most patients with chronic rhinosinusitis experienced severe impairment in quality of life, particularly in the domains of nasal symptoms, sleep, and psychological well-being.

Keyword: Chronic rhinosinusitis, nasal obstruction, quality of life, sinus paranasal, SNOT-22

Received: 2026-05-06, Revised: 2026-06-18, Accepted: 2026-06-24, Published: 2026-06-30.

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How to cite :

Bonita, A. G., Nurrokhmawati, Y. and Pratiwi, S.T.(2026) "Quality of life in patients with chronic rhinosinusitis at dustira hospital using the SNOT-22 questionnaire", Acta Medical and Health Sciences, 5(1).p.8-13. doi: <https://doi.org/10.35990/amhs.v5n1.p8-13>

INTRODUCTION

Rhinosinusitis is an inflammatory condition affecting the nasal mucosa and paranasal sinuses, characterized by two or more persistent clinical symptoms.¹ Classically categorized by duration as acute rhinosinusitis (<4 weeks) and chronic rhinosinusitis (CRS, >12 weeks), CRS represents a complex, multifactorial disease process involving persistent tissue eosinophilia, mucosal edema, and persistent immune dysfunction rather than a simple unresolved infectious state.^{1,2} Beyond local pathophysiological changes, persistent symptoms such as nasal obstruction, discolored rhinorrhea, facial pain/pressure, and sleep fragmentation significantly impair health-related quality of life.³ While historical literature primarily emphasized physical symptom severity, modern clinical understanding recognizes that CRS exerts a profound multidimensional burden, including severe psychological distress and daily functional limitations comparable to that of major chronic medical conditions such as chronic obstructive pulmonary disease or congestive heart failure.^{3,4}

Globally, chronic rhinosinusitis poses a major public health challenge with a substantial epidemiological impact, affecting approximately 10-13% of the population in European and Asian regions and reaching 12.3% in the United States.^{5,6} However, significant global variations in reported prevalence reflect not only environmental, occupational, and genetic heterogeneity but also diagnostic discrepancies across healthcare systems.⁶ In Indonesia, national and regional data reflect a similarly high burden; for instance, epidemiological records from Dr. Hasan Sadikin General Hospital Bandung (2021-2022) identified significant CRS cases predominantly affecting individuals in their prime working age (40-49 years).⁸ Furthermore, historical data from Dustira Hospital recorded an incidence rate of 457 per 10,000 population, underscoring CRS as a critical health issue in secondary and

tertiary care centers.⁷ Despite these alarming figures, epidemiological studies in developing regions often rely primarily on cross-sectional clinical cohorts rather than large-scale longitudinal surveillance, potentially underestimating the true disease burden in the community.⁶

Although multiple generic and disease-specific health-related quality-of-life questionnaires exist, the 22-item Sino-Nasal Outcome Test (SNOT-22) has emerged as the widely used standard for assessing disease-specific quality of life in patients with CRS.⁹ Unlike broad generic instruments, SNOT-22 comprehensively captures physical nasal symptoms, sleep disturbance, and emotional/social dysfunction while demonstrating superior responsiveness to clinical changes post-intervention.⁹ Regional studies across Indonesian centers such as Sanglah Hospital Denpasar, Dr. Pirngadi Hospital Medan, Pelamonia Hospital Makassar, and Deli Serdang Hospital consistently demonstrate that patients with CRS experience severe quality-of-life impairment, with nasal obstruction, post-nasal drip, and sleep disturbance consistently emerging as the primary contributors of patient morbidity.^{10,11,12} Nevertheless, current literature remains largely descriptive, frequently reporting symptom frequencies without examining the relationship between specific symptom domains and psychological burnout, loss of workplace productivity, and treatment dissatisfaction across distinct patient populations.^{10,12} Despite the high reported incidence of CRS at Dustira Hospital, there is a distinct lack of empirical studies critically evaluating disease specific quality of life using validated metrics such as the SNOT-22 in this specific clinical setting.^{7,9} Understanding the localized patient profile and identifying the predominant symptom domains affecting patient well-being are crucial for transitioning from symptom-centric care to patient-centered, holistic management strategies.^{3,4}

Therefore, this study aimed to evaluate the quality of life among patients with chronic rhinosinusitis at the ENT-HNS outpatient clinic of Dustira Hospital from October 2025 to January 2026 using the SNOT-22 questionnaire, addressing this local clinical gap and providing a scientific foundation for improved therapeutic outcomes.^{7,9}

METHODS AND SUBJECT

This descriptive observational study employed a cross-sectional design and was conducted at the ENT–Head and Neck Surgery Outpatient Clinic of Dustira Hospital, Bandung, Indonesia, from October 2025 to January 2026. The study protocol was approved by the Ethics Committee of Dustira Hospital (Approval No. B/1837/X/2025). The study population consisted of patients diagnosed with chronic rhinosinusitis (CRS) who attended the outpatient clinic during the study period. A total sampling technique was employed. Because this was a descriptive study using total sampling, no formal sample size calculation was performed. All eligible patients who fulfilled the inclusion and exclusion criteria during the study period were included in the study.

The inclusion criteria were patients aged >12 years who were diagnosed with chronic rhinosinusitis according to the European Position Paper on Rhinosinusitis and Nasal Polyps (EPOS) 2020 criteria¹ and who agreed to participate by providing written informed consent and completing the questionnaire. Patients with incomplete questionnaire responses or comorbid conditions that might influence quality-of-life assessment, including diabetes mellitus, psychiatric disorders, facial or nasal trauma, intranasal tumors, and asthma, were excluded from the study.

The primary outcome was quality of life among patients with chronic rhinosinusitis, while supporting variables included age, sex, and occupation. Age was categorized according to the Indonesian

Ministry of Health into adolescents (10–17 years), adults (18–59 years), and elderly (≥ 60 years).¹³ Quality of life was assessed using the Indonesian version of the Sino-Nasal Outcome Test-22 (SNOT-22), a validated disease-specific questionnaire consisting of 22 items, each scored on a six-point Likert scale ranging from 0 (no problem) to 5 (problem as bad as it can be), with higher total scores indicating poorer quality of life.^{9,14,15} The SNOT-22 evaluates five domains: rhinologic symptoms, extranasal rhinologic symptoms, ear/facial symptoms, psychological dysfunction, and sleep dysfunction.^{9,14} Total SNOT-22 scores were categorized as mild (8–20), moderate (21–50), and severe (>50).^{11,16}

After written informed consent was obtained, participants completed the SNOT-22 questionnaire during their outpatient visit. Demographic characteristics, including age, sex, and occupation, were recorded. Patient confidentiality was maintained by anonymizing all collected data and using the information solely for research purposes.

Data were analyzed using IBM SPSS Statistics. Descriptive (univariate) analysis was performed. Continuous variables were summarized as mean $\pm$ standard deviation (SD), whereas categorical variables were presented as frequencies and percentages. Descriptive statistics were used to summarize individual SNOT-22 item scores and the distribution of quality-of-life categories.

During the study period, 43 patients with chronic rhinosinusitis were screened. After applying the eligibility criteria, 35 patients were eligible and included in the final analysis. Most participants were adults aged 18–59 years (91.4%), while females accounted for 71.4% of the study population. The most common occupations were housewives (25.7%) and students (25.7%).

Based on the SNOT-22 classification, 30 patients (85.7%) had severe impairment in quality of life, four patients (11.4%) had moderate impairment, and one patient (2.9%) had mild impairment. Analysis of individual SNOT-22 item scores showed that nasal obstruction (4.23 ± 1.00), nasal discharge (4.00 ± 1.19), reduced sense of smell or taste (3.83 ± 1.34), and the need to blow the nose (3.74 ± 1.27) had the highest mean item scores. Sleep-related complaints, including difficulty falling asleep (3.40 ± 1.46) and waking up at night (3.31 ± 1.55), also demonstrated relatively high mean

item scores, indicating that nasal symptoms and sleep disturbances were the predominant factors contributing to impaired quality of life.

RESULTS AND DISCUSSION

This study was conducted at the ENT-HNS Outpatient Clinic of Dustira Hospital from October 2025 to January 2026. A total of 43 patients were initially identified during data collection. After applying the inclusion and exclusion criteria, 8 patients were excluded due to comorbid conditions. Therefore, 35 patients were included in the final analysis.

Table 1. Distribution of Patients Based on Age

Age Category	Frequency	%
Adolescents (10–17)	3	8.6%
Adults (18–59)	32	91.4%
Elderly (≥ 60)	0	0%
Total	35	100

Distribution of chronic rhinosinusitis patients according to age group is presented in Table 1. Most patients belonged to the adult age group (18–59 years), accounting for 91.4% of the study population, whereas only 8.6% were adolescents and no elderly patients were identified. This finding is consistent with the European Position Paper on Rhinosinusitis and Nasal Polyps (EPOS 2020), which states that chronic rhinosinusitis predominantly affects adults because prolonged exposure to environmental irritants and chronic inflammatory processes increase disease susceptibility.^{1,2}

Similar findings have been reported in previous Indonesian studies conducted at

Dr. Hasan Sadikin Hospital, Pelamonia Hospital, and Deli Serdang Hospital, where most chronic rhinosinusitis patients were also within the productive-age group.^{8,12,16}

International epidemiological studies have likewise demonstrated that chronic rhinosinusitis is most prevalent among adults, with environmental exposure, smoking, air pollution, and occupational factors contributing to disease development.⁶

The predominance of productive-age patients suggests that chronic rhinosinusitis may impose a considerable socioeconomic burden because persistent symptoms can reduce work productivity and impair daily activities and quality of life.^{3,4,17}

Table 2. Distribution of Patients Based on Sex

Sex	N	%
Male	10	28.6%
Female	25	71.4%
Total	35	100%

Female patients accounted for 71.4% of all participants, indicating a predominance of women among chronic rhinosinusitis patients in this study. Similar findings have been reported in studies from Pelamonia Hospital, Deli Serdang Hospital, and other Indonesian hospitals.^{12,16}

Several mechanisms may explain this finding. Estrogen and progesterone influence nasal mucosal vascularity, epithelial permeability, mucus secretion,

and inflammatory responses, potentially increasing susceptibility to persistent sinonasal inflammation.^{2,18}

In addition, women generally demonstrate greater healthcare-seeking behavior than men, making them more likely to seek medical attention for chronic sinonasal symptoms.⁶

Therefore, the higher proportion of female patients observed in this study may reflect both biological susceptibility and differences in healthcare utilization.^{2,6}

Table 3. Distribution of Patients Based on Occupation

Occupation	Frequency	%
School Students	4	11.4%
Housewives	9	25.7%
Daily Worker	1	2.9%
Private Sector Employee	7	20.0%
Freelance	1	2.9%
University Students	9	25.7%
Civil Servant	2	5.7%
Employment Social Security	1	2.9%
Laborer	1	2.9%
Total	35	100

Housewives and college students represented the largest occupational groups in this study. Although occupation was evaluated descriptively, these findings may reflect differences in environmental exposure rather than direct occupational risk.^{2,6}

Housewives may experience prolonged exposure to indoor pollutants such as cooking smoke, household dust,

and cleaning chemicals, whereas students may be exposed to crowded environments and air pollution that can aggravate chronic sinonasal inflammation.^{1,6}

However, because occupational exposure was not quantitatively evaluated in this study, no causal relationship can be established, and future analytical studies are needed to investigate occupational risk factors more comprehensively.^{2,6}

Table 4. Distribution of Patients Based on the SNOT-22 Questionnaire

Symptoms	Mean
Need to blow nose	3.49
Blockage of nose	4.23
Sneezing	3.74
Runny nose	4.00
Cough	2.86
Post-nasal drip	3.74
Thick nasal discharge	3.63
Ear fullness	2.66
Dizziness	3.83
Ear pain	2.34
Facial pain	3.31
Loss of sense of taste/smell	3.34
Difficulty falling asleep	3.4
Waking up at night	3.2
Lack of good sleep	3.4
Waking up tired	3.31
Fatigue	3.11
Reduced productivity	3.06
Reduced concentration	3.34
Frustrated	2.74
Sad	2.23
Embarrassed	2.14

Nasal obstruction, nasal discharge, reduced sense of smell or taste, and the need to blow the nose demonstrated the highest SNOT-22 scores, while sleep-related complaints also showed relatively high mean scores. Similar symptom patterns have been reported in studies conducted in Medan, Makassar, and Deli Serdang, where nasal obstruction consistently emerged as the most troublesome symptom affecting patients' quality of life.^{11,12,16}

Persistent inflammation causes edema of the sinonasal mucosa and obstruction of the osteomeatal complex, resulting in impaired mucociliary clearance,

retained secretions, and persistent symptoms.^{1,2}

Chronic nasal obstruction also contributes to poor sleep quality, daytime fatigue, impaired concentration, and reduced physical functioning, thereby worsening patients' overall quality of life.^{4,17}

These findings support the routine use of the SNOT-22 questionnaire because it comprehensively evaluates physical symptoms together with sleep and psychological disturbances that may otherwise be underestimated during routine clinical assessment.^{9,14,15}

Table 5. Distribution of Quality of Life

Quality of Life	Frequency	%
Mild (8–20)	1	2.9%
Moderate (21–50)	4	11.4%
Severe (>50)	30	85.7%
Total	35	100

Most patients (85.7%) were classified as having severe impairment in quality of life according to the SNOT-22 score. This finding is consistent with previous Indonesian studies, which reported that most chronic rhinosinusitis patients attending referral hospitals experienced severe impairment in quality of life.^{11,12,13,16}

The high prevalence of severe impairment observed in this study may be explained by the characteristics of the study setting. As a referral hospital, Dustira Hospital is likely to receive patients with persistent symptoms or those who have failed initial treatment at primary healthcare facilities, resulting in a higher proportion of severe cases.^{1,2,19}

Persistent nasal obstruction, nasal discharge, olfactory dysfunction, and sleep disturbances collectively contribute to physical, emotional, and social impairment, leading to higher SNOT-22 scores and reduced quality of life.^{3,4,17,20}

Clinically, these findings highlight the importance of routine SNOT-22 assessment to identify patients with severe quality-of-life impairment, monitor treatment response, and facilitate comprehensive management that addresses not only physical symptoms but also sleep and psychological well-being.^{9,14,15}

CONCLUSION

Chronic rhinosinusitis significantly impairs health-related quality of life among patients at Dustira Hospital, with the majority experiencing severe functional deterioration. This morbidity is primarily driven by physical sinonasal symptoms such as nasal obstruction and discharge and secondary sleep disturbances that disrupt daily functioning, predominantly affecting females and individuals of productive age.

To mitigate this burden. Clinical practice should move beyond symptom-centric treatment by integrating routine SNOT-22 screening into outpatient

workflows to identify hidden sleep and psychological impairments early. Furthermore, clear primary-to-secondary referral pathways should be established to prevent delays in specialist care and reduce severe disease progression. For future research, multi-center longitudinal studies with larger cohorts are recommended to evaluate post-treatment SNOT-22 outcomes and establish specific symptom-cluster drivers within local populations.

ACKNOWLEDGEMENTS

The author acknowledges Dustira Hospital and Universitas Jenderal Achmad Yani for granting permission and providing facilities to conduct this research. The author also extends heartfelt appreciation to Dr. Yanti Nurrokhmawati, Sp.T.H.T.B.K.L., M. Kes., SubSp.Kom., as the primary supervisor, and Dr. Siska Telly Pratiwi, M.Kes., as the co-supervisor, for their invaluable guidance, support, and constructive feedback throughout this research. Appreciation is also conveyed to all respondents who willingly participated in this study.

DECLARATION OF INTERESTS

The author declares no conflict of interest related to this research.

FUNDING

No external funding was received for this study, and this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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